

CLAIMS

1. A drive shaft moving device, comprising: a principal part of the device through which a drive shaft is inserted, the drive shaft having a thread groove in its external surface; a nut
5 provided inside the principal part of the device to engage with the thread groove of the drive shaft; and drive means for rotating the nut around the drive shaft, the drive means rotating the nut to move the drive shaft in an axial direction relative to the principal part of the device,

wherein the inside of the principal part of the device includes rotation speed
10 switching means for switching the rotation speed of the nut among a plurality of rotation speeds when transmitting a torque from the drive means to the nut.

2. The drive shaft moving device of claim 1, wherein the drive shaft is located to penetrate through the rotation speed switching means.

3. The drive shaft moving device of claim 1 or 2, wherein the rotation speed switching means includes a speed reduction mechanism for reducing the rotation speed of an output
15 shaft of the drive means.

4. The drive shaft moving device of claim 3, wherein:

the nut has an annular part surrounding the drive shaft;

the drive shaft is inserted through the output shaft of the drive means; and

the speed reduction mechanism includes follower teeth formed by internal teeth provided on an inner periphery of the annular part and driver teeth provided on the outer
25 periphery of the output shaft to mesh with the follower teeth.

5. The drive shaft moving device of claim 1 or 2, wherein:

the nut has an annular part surrounding the drive shaft;

the drive means has an output shaft through which the drive shaft is inserted; and

the rotation speed switching means includes follower teeth formed by internal teeth

5 provided on an inner periphery of the annular part, driver teeth provided on the outer periphery of the output shaft to mesh with the follower teeth, and clutching means integrally rotatable with the output shaft for switching the connection/disconnection between the output shaft and the nut.

10 6. The drive shaft moving device of claim 1 or 2, wherein:

the nut has an annular part surrounding the drive shaft;

the drive means has an output shaft through which the drive shaft is inserted; and

the rotation speed switching means includes a cylindrical rotary member supported

rotatably around the output shaft, first follower teeth formed by internal teeth provided on

15 an inner periphery of the annular part of the nut, first driver teeth provided on the outer periphery of the rotary member to mesh with the first follower teeth, second follower teeth provided on an inner periphery of the rotary member, second driver teeth provided on the outer periphery of the output shaft to mesh with the second follower teeth, and clutching means integrally rotatable with the output shaft for switching the connection/disconnection

20 between the output shaft and the rotary member.